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August 24, 2018

Office of the Chief Clerk, MC-105
Texas Commission on Environmental Quality
PO Box 13087
Austin, TX 78711-3087

Re: TCEQ Industrial Wastewater Discharge NORI for Permit Number WQ0005253000

Dear Sir or Madam:

The Texas Parks and Wildlife Department (TPWD) appreciates the opportunity to provide comment on the application for the proposed Texas Pollutant Discharge Elimination System (TPDES) industrial wastewater discharge permit for Port of Corpus Christi Authority (POCCA) of Nueces County. (Permit No. WQ0005253000). TPWD is the agency with primary responsibility for protecting the state's fish and wildlife resources (Texas Parks and Wildlife Code §12.0011(a)) in addition to encouraging outdoor recreation on Texas water resources. With respect to this role, we are concerned about water quality for fish and wildlife. Additionally, we are charged with providing information on fish and wildlife resources to any local, state, and federal agencies or private organizations that make decisions affecting those resources (Texas Parks and Wildlife Code §12.0011(b)(3)). Please be aware that a written response to a TPWD recommendation for informational comment received by a state government agency may be required by state law. For further guidance, please see Texas Parks & Wildlife Code Section 12.0011.

In light of the statutory mandate, we have reviewed the aforementioned TPDES permit application and offer our comments.

TPWD has several concerns regarding POCCA's application to discharge 95,600,000 gallons of treated desalination brine concentrate to the Corpus Christi Channel at Harbor Island. Estuaries are among the most productive natural systems and are important nursery areas that provide specific salinities to complete development phases, refuge from predation, and are sources of food for many species (Patillo et al. 1997). The location of the proposed discharge is within an estuarine area TPWD designated in 2000 as the Redfish Bay State Scientific Area (RBSSA). The RBSSA contains a unique and fragile environment including seagrass beds, oyster reefs, marshes and mangroves, providing a feeding and nursery habitat for shrimp, crabs, and gamefish, waterfowl, shorebirds and turtles. Many aquatic species including Gulf Menhaden, flounder, redfish, shrimp, blue crab, and green sea turtles utilize major and minor coastal passes such as the Corpus Christi and Aransas Channels to reach habitats or food sources required during their various life stages (Nelson 1992, Patillo et al. 1997, Renaud et al. 1995).

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Furthermore, there is a rather large, and well-known annual aggregation of mature sheepshead very close to the proposed discharge location every winter. This area is also an important spawning aggregation area. TPWD is concerned that any increased water temperatures, especially in the winter months, could pose a problem for the spawning habitat in this area by the release of warm water from the desalination plant discharge. Depending on the spatial extent of any potential water temperature increase from this discharge, this fishery, used by fishing guides and recreational anglers, might be impacted.

In conducting a technical review of this permit application for the discharge of brine concentrate waste, TPWD recommends the following evaluations. The first three are important to aquatic organisms because a shift in the salt ratio and type of salt can cause osmotic imbalance and toxicity. At a minimum, evaluations should address:

- the total salt content as compared with receiving waters;
- the source of the salts (in the case of mixed or comingled waste discharges);
- the ratio of the type of salts compared with those in the receiving waters;
- whether there is adequate circulation to prevent the salt from building up over time to a point where it is toxic to the ecological community;
- the potential for depressed oxygen levels due to poorly dispersed brine discharges at a particular location;
- the contaminants discharged with the brine that resulted from natural sources (such as fluoride and copper), and from chemicals used in the operation and maintenance of the desalination facility such as conditioning reagents, antiscalant chemicals, and metals from corrosion of piping (iron, chromium, and nickel); and
- a site-specific analysis is recommended to determine if there is toxicity and, if so, the steps needed to minimize the impact.

Key recommendations from published literature (Roberts et al. 2012) concerning discharge plume regulations and modeling approaches include:

- using a mixing zone approach to regulate discharges;
- regulating toxicity and water quality objectives at the edge of a mixing zone boundary that is conservatively recommended to be 100 meters from the discharge and includes the entire water column;
- limiting salinity increases at the mixing zone boundary to no more than 5% (or an absolute increment of 2 practical salinity units (psu), whichever is less) of that occurring naturally in the waters around the discharge; and
- accounting for effluent density and flow rates on plume behavior; and applying conservative assumptions when evaluating dilution and overall flushing of the discharge site to ensure the dilution requirement at the edge of the mixing zone is still met.

TPWD is currently in consultation with the permit applicant and encourages continued discussions with TPWD Coastal Fisheries staff knowledgeable of the potential impacts

from this discharge related to temperature changes, salinity, and dissolved oxygen within this area of Harbor Island prior to finalizing the permit. TPWD encourages TCEQ staff to participate in these discussions as well as the permit application moves through a technical review.

TPWD requests that these comments be considered during the technical review of the proposed permit application. We appreciate the opportunity to offer comment and look forward to working with TCEQ, the applicant, and other stakeholders on this matter. If you have questions or need more information, please contact me at cindy.loeffler@tpwd.texas.gov or (512) 389-8715. Thank you again for the opportunity to comment and for the opportunity to work collaboratively with you and your colleagues to conserve and protect Texas' valued aquatic resources.

Sincerely,

Cindy Loeffler

Cindy Loeffler
Water Resources Branch Chief

CL:ms

cc: Ms. Anne Rogers Harrison
Mr. James Murphy
Mr. Alex Nunez
Mr. Brian Bartram

References:

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